

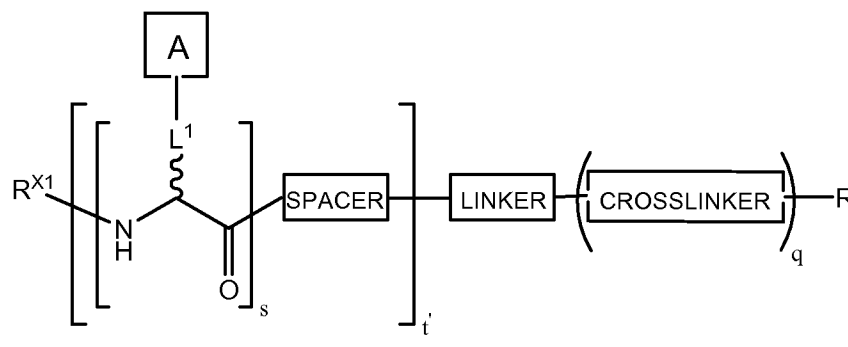
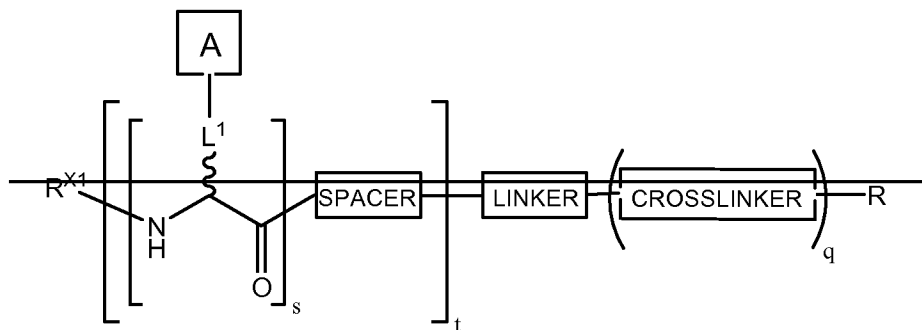
## Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims

What is claimed is:

1. **(Currently Amended)** A clustered multi-antigenic construct having the structure:



wherein  $q$  is 0 or 1;

each occurrence of  $s$  is independently an integer from 1-20;

$t$   $t'$  is an integer from 1-6 2-6;

$R^{X1}$  is hydrogen, alkyl, acyl, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), a nitrogen protecting group, an amino acid or a protected amino acid;

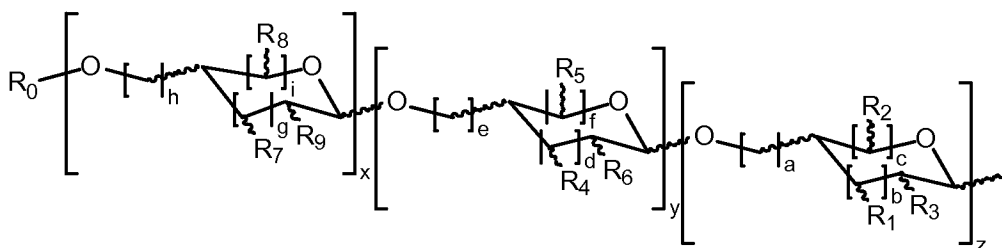
$R$  is hydrogen or an immunogenic carrier;

each occurrence of the spacer is independently a substituted or unsubstituted aliphatic, heteroaliphatic, aryl, heteroaryl or peptidic moiety;

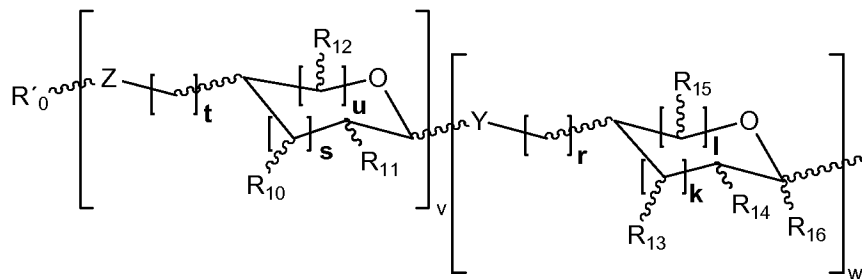
the linker is either a free carboxylic acid,  $-O-$ , (carboxamido)alkyl carboxamide, MBS, primary carboxamide, mono- or dialkyl carboxamide, mono- or diarylcarboxamide, linear or branched chain (carboxy)alkyl carboxamide, linear or branched chain (alkoxycarbonyl)alkyl-carboxamide, linear or branched chain (carboxy)arylalkylcarboxamide, linear or branched chain (alkoxycarbonyl)alkylcarboxamide, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester;

each occurrence of  $L^1$  is independently a substituted or unsubstituted aliphatic or heteroaliphatic moiety;

each occurrence of A is independently a carbohydrate determinant having the structure:



wherein a, b, c, d, e, f, g, h, i, x, y and z are independently 0, 1, 2 or 3, with the proviso that the x, y and z bracketed structures represent ~~furanose or~~ pyranose moieties and the sum of b and c is ~~1 or~~ 2, the sum of d and f is ~~1 or~~ 2, and the sum of g and i is ~~1 or~~ 2, and with the proviso that x, y and z are not simultaneously 0; wherein  $R_0$  is hydrogen, a linear or branched chain alkyl, acyl, arylalkyl or aryl group; wherein each occurrence of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ ,  $R_6$ ,  $R_7$ ,  $R_8$  and  $R_9$  is independently hydrogen, OH,  $OR^i$ ,  $NHR^i$ ,  $NHCOR^i$ , F,  $CH_2OH$ ,  $CH_2OR^i$ , a substituted or unsubstituted linear or branched chain alkyl, (mono-, di- or tri)hydroxyalkyl, (mono-, di- or tri)acyloxyalkyl, arylalkyl or aryl group; wherein each occurrence of  $R^i$  is independently hydrogen, CHO,  $COOR^{ii}$ , or a substituted or unsubstituted linear or branched chain alkyl, acyl, arylalkyl or aryl group or a saccharide moiety having the structure:



wherein Y and Z are independently NH or O; wherein k, l, r, s, t, u, v and w are each independently 0, 1 or 2; with the proviso that the v and w bracketed structures represent furanose or pyranose moieties and the sum of l and k is  $\neq 2$ , and the sum of s and u is  $\neq 2$ , and with the proviso that v and w are not simultaneously 0; wherein  $R'_0$  is hydrogen, a linear or branched chain alkyl, acyl, arylalkyl or aryl group; wherein each occurrence of  $R_{10}$ ,  $R_{11}$ ,  $R_{12}$ ,  $R_{13}$ ,  $R_{14}$  and  $R_{15}$  is independently hydrogen, OH,  $OR^{iii}$ ,  $NHR^{iii}$ ,  $NHCOR^{iii}$ , F,  $CH_2OH$ ,  $CH_2OR^{iii}$ , or a substituted or unsubstituted linear or branched chain alkyl, (mono-, di- or tri)hydroxyalkyl, (mono-, di- or tri)acyloxyalkyl, arylalkyl or aryl group; wherein each occurrence of  $R_{16}$  is hydrogen, COOH,  $COOR^{ii}$ ,  $CONHR^{ii}$ , a substituted or unsubstituted linear or branched chain alkyl or aryl group; wherein each occurrence of  $R^{iii}$  is hydrogen, CHO,  $COOR^{iv}$ , or a substituted or unsubstituted linear or branched chain alkyl, acyl, arylalkyl or aryl group; and wherein each occurrence of  $R^{ii}$  and  $R^{iv}$  are each independently H, or a substituted or unsubstituted linear or branched chain alkyl, arylalkyl or aryl group;

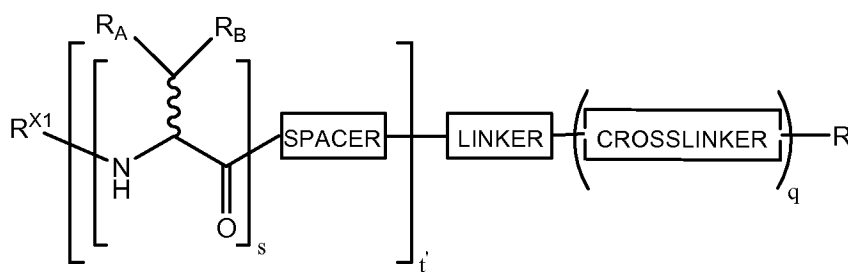
with the proviso that all occurrences of A on the multi-antigenic glycopeptide are not the same;

with the limitation that each occurrence of A independently comprises a carbohydrate domain, or truncated or elongated version thereof, that is present on tumor cells.

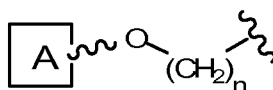
2. **(Currently Amended)** The construct of claim 1 wherein  $t \neq t'$  is  $\geq 2$  and within each bracketed structure s, independently, each occurrence of A is the same.

3. **(Original)** The construct of claim 1, wherein occurrences of A from one bracketed structure s to the next are different.

4. **(Original)** The construct of claim 1, wherein A, for each occurrence, is independently selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, N3, Tn, TF, STN, (2,3)ST, 2,6-STn, Gb3, Le<sup>y</sup> and Le<sup>x</sup>.
5. **(Currently Amended)** The construct of claim 1, wherein each occurrence of L<sup>1</sup> is independently a moiety having the structure  $-\text{O}(\text{CH}_2)_n-$  wherein n is an integer from 1-10; or a natural amino acid side chain, wherein a hydrogen radical of the natural amino acid side chain has been removed and replaced with a carbohydrate moiety A as defined in claim 1.
6. **(Original)** The construct of claim 5, wherein each occurrence of L<sup>1</sup> is independently a moiety having the structure  $-\text{O}(\text{CH}_2)_n-$  wherein n is an integer from 1-10.
7. **(Original)** The construct of claim 6, wherein n is 3.
8. **(Currently Amended)** The construct of claim 1, ~~wherein each occurrence of L<sup>1</sup> is independently a natural amino acid side chain~~ having the structure:



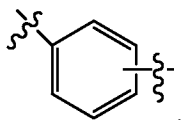
wherein each occurrence of R<sub>A</sub> is independently H or methyl; and  
wherein each occurrence of R<sub>B</sub> is independently an alkyl glycoside moiety having the structure:



wherein n is an integer from 0-9;

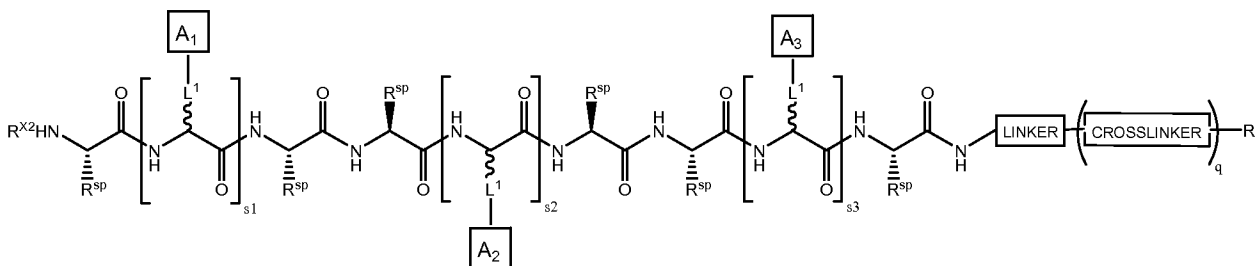
wherein A, for each occurrence, is independently selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, N3, Tn, TF, STN, (2,3)ST, 2,6-STn, Gb3, Le<sup>y</sup> and Le<sup>x</sup>.

9. **(Original)** The construct of claim 1, wherein R<sup>X1</sup> is an acyl moiety.
10. **(Original)** The construct of claim 9, wherein R<sup>X1</sup> is an amino acid residue.
11. **(Original)** The construct of claim 1, wherein the spacer, for each occurrence, is independently a substituted or unsubstituted C<sub>1-6</sub>alkylidene or C<sub>2-6</sub>alkenylidene chain wherein up to two non-adjacent methylene units are independently optionally replaced by CO, CO<sub>2</sub>, COCO, CONR<sup>Z1</sup>, OCONR<sup>Z1</sup>, NR<sup>Z1</sup>NR<sup>Z2</sup>, NR<sup>Z1</sup>NR<sup>Z2</sup>CO, NR<sup>Z1</sup>CO, NR<sup>Z1</sup>CO<sub>2</sub>, NR<sup>Z1</sup>CONR<sup>Z2</sup>, SO, SO<sub>2</sub>, NR<sup>Z1</sup>SO<sub>2</sub>, SO<sub>2</sub>NR<sup>Z1</sup>, NR<sup>Z1</sup>SO<sub>2</sub>NR<sup>Z2</sup>, O, S, or NR<sup>Z1</sup>; wherein each occurrence of R<sup>Z1</sup> and R<sup>Z2</sup> is independently hydrogen, alkyl, heteroalkyl, aryl, heteroaryl or acyl; a peptidyl moiety or a bivalent aryl or heteroaryl moiety.
12. **(Original)** The construct of claim 1, wherein the spacer, for each occurrence, is independently -(CHR<sup>sp</sup>)<sub>n</sub>-, where n is 1-8 and each occurrence of R<sup>sp</sup> is independently hydrogen, alkyl, cycloalkyl, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), -OR<sup>sp1</sup>, -SR<sup>sp1</sup> or -NR<sup>sp1</sup>R<sup>sp2</sup> where R<sup>sp1</sup> and R<sup>sp2</sup> are independently hydrogen or lower alkyl; a peptidyl moiety comprising one or more α-amino acid residues, or a bivalent aryl moiety having the structure:

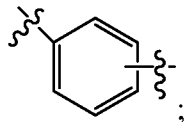


13. **(Original)** The construct of claim 1, wherein each occurrence of the spacer is independently a dipeptidyl moiety.

14. **(Currently Amended)** The construct of claim 1, wherein  $t'$  is 3, each occurrence of the spacer that is not directly attached to the linker is independently a dipeptidyl moiety and the glycopeptide has the structure:

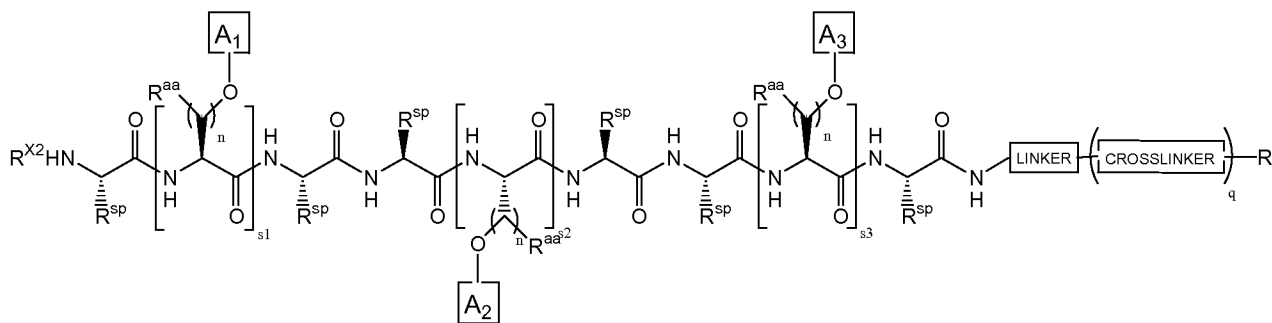


wherein  $L^1$  and  $R^{sp}$  are as is as defined in claim 1; wherein  $R^{sp}$  is independently hydrogen, alkyl, cycloalkyl, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl),  $-OR^{sp1}$ ,  $-SR^{sp1}$  or  $-NR^{sp1}R^{sp2}$  where  $R^{sp1}$  and  $R^{sp1}$  are independently hydrogen or lower alkyl; a peptidyl moiety comprising one or more  $\alpha$ -amino acid residues, or a bivalent aryl moiety having the structure:



$s_1$ ,  $s_2$  and  $s_3$  are independently integers from 2-5;  $A_1$ - $A_3$  are carbohydrate domains, as defined for A in claim 1, and are different from each other; and  $R^{X2}$  is hydrogen, alkyl, acyl, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl) or a nitrogen protecting group.

15. **(Original)** The construct of claim 14 having the structure:



wherein  $R$ ,  $R^{X2}$ ,  $R^{sp}$ ,  $s_1$ ,  $s_2$  and  $s_3$  and  $A_1$ - $A_3$  are as defined in claim 14; each occurrence of  $n$  is independently an integer from 1-10; and each occurrence of  $R^{aa}$  is hydrogen, lower alkyl, aryl, heteroaryl, -alkyl(aryl) or -alkyl(heteroaryl).

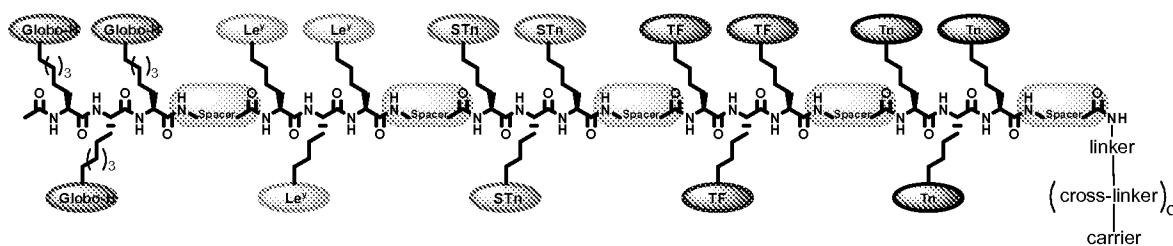
16. **(Original)** The construct of claim 15, wherein each occurrence of  $n$  is 1 and each occurrence of  $R^{aa}$  is hydrogen or methyl.

17. **(Original)** The construct of claim 15, wherein each occurrence of  $n$  is independently an integer from 1-10 and each occurrence of  $R^{aa}$  is hydrogen.

18. **(Original)** The construct of claim 15, wherein each occurrence of  $R^{sp}$  is independently a natural amino acid side chain.

19. **(Original)** The construct of claim 18, wherein each occurrence of  $R^{sp}$  is hydrogen.

20. **(Original)** The construct of claim 1 having the structure:



wherein  $q$  is 0 or 1; the spacer, for each occurrence, is independently a substituted or unsubstituted  $C_{1-6}$ alkylidene or  $C_{2-6}$ alkenylidene chain wherein up to two non-adjacent methylene units are independently optionally replaced by CO, CO<sub>2</sub>, COCO, CONR<sup>Z1</sup>, OCONR<sup>Z1</sup>, NR<sup>Z1</sup>NR<sup>Z2</sup>, NR<sup>Z1</sup>NR<sup>Z2</sup>CO, NR<sup>Z1</sup>CO, NR<sup>Z1</sup>CO<sub>2</sub>, NR<sup>Z1</sup>CONR<sup>Z2</sup>, SO, SO<sub>2</sub>, NR<sup>Z1</sup>SO<sub>2</sub>, SO<sub>2</sub>NR<sup>Z1</sup>, NR<sup>Z1</sup>SO<sub>2</sub>NR<sup>Z2</sup>, O, S, or NR<sup>Z1</sup>; wherein each occurrence of  $R^{Z1}$  and  $R^{Z2}$  is independently hydrogen, alkyl, heteroalkyl, aryl, heteroaryl or acyl; a peptidyl moiety or a bivalent aryl or heteroaryl moiety; the linker is either a free carboxylic acid, –O–, (carboxamido)alkyl carboxamide, MBS, primary carboxamide, mono- or dialkyl carboxamide, mono- or diarylcarboxamide, linear or branched chain (carboxy)alkyl carboxamide, linear or branched chain (alkoxycarbonyl)alkyl-carboxamide, linear or branched chain (carboxy)arylalkylcarboxamide, linear or branched chain (alkoxycarbonyl)alkylcarboxamide, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl

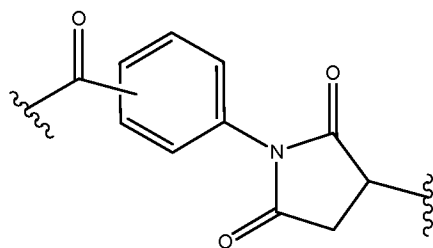
residues, or a linear or branched chain alkyl or aryl carboxylic ester; and the carrier is an immunogenic carrier.

21. **(Original)** The construct of claim 1, 14, 15 or 20, wherein the linker is -O-, -NR<sub>G</sub>-, -NR<sub>G</sub>(aliphatic)NR<sub>J</sub>-, -NR<sub>G</sub>(heteroaliphatic)NR<sub>J</sub>-, -(aliphatic)NR<sub>J</sub>-, -(heteroaliphatic)NR<sub>J</sub>-, -O(aliphatic)NR<sub>J</sub>-, -O(heteroaliphatic)NR<sub>J</sub>-, -NR<sub>G</sub>(aliphatic)NR<sub>J</sub>(C=O)(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>S-, -NR<sub>G</sub>(heteroaliphatic)NR<sub>J</sub>(C=O)(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>S-, -(aliphatic)NR<sub>J</sub>(C=O)(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>S-, -(heteroaliphatic)NR<sub>J</sub>(C=O)(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>S-, -O(aliphatic)NR<sub>J</sub>(C=O)(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>S-, -O(heteroaliphatic)NR<sub>J</sub>(C=O)(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>S-, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester, wherein each occurrence of k is independently 1-5; wherein each occurrence of R<sub>G</sub>, R<sub>H</sub>, R<sub>I</sub> or R<sub>J</sub> is independently hydrogen, a linear or branched, substituted or unsubstituted, cyclic or acyclic moiety, or a substituted or unsubstituted aryl moiety, and wherein each aliphatic or heteroaliphatic moiety is independently substituted or unsubstituted, linear or branched, cyclic or acyclic.

22. **(Original)** The construct of claim 21, wherein the linker is -O-, -NR<sub>G</sub>(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>NR<sub>J</sub>-, -NR<sub>G</sub>(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>NR<sub>J</sub>(C=O)(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>S-, -NR<sub>G</sub>-, -(CR<sub>H</sub>R<sub>J</sub>)<sub>k</sub>NR<sub>I</sub>-, -O(CR<sub>H</sub>R<sub>I</sub>)<sub>k</sub>NR<sub>J</sub>, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester, wherein each occurrence of k is independently 1-5, wherein each occurrence of R<sub>G</sub>, R<sub>H</sub>, R<sub>I</sub> or R<sub>J</sub> is independently hydrogen, a linear or branched, substituted or unsubstituted, cyclic or acyclic moiety, or a substituted or unsubstituted aryl moiety.

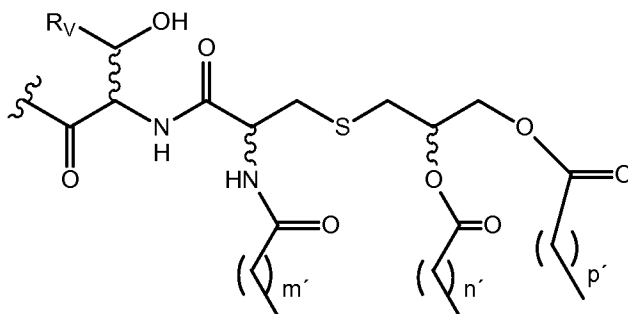
23. **(Original)** The construct of claim 1, 14, 15 or 20, wherein q is 1 and the crosslinker is a fragment having the structure:





whereby said structure is generated upon conjugation of maleimidobenzoic acid N-hydroxy succinimide ester with a linker.

24. **(Original)** The construct of claim 1, 14 or 15, wherein R is hydrogen and q is 0.
25. **(Original)** The construct of claim 1, 14 or 15, wherein R is an immunogenic carrier.
26. **(Original)** The construct of claim 25 wherein the immunogenic carrier is a protein, peptide or lipid.
27. **(Original)** The construct of claim 26 wherein the carrier is KLH, polylysine, HSA or BSA.
28. **(Original)** The construct of claim 1, 14 or 15, wherein q is 0 and R is a lipid immunogenic carrier having the structure:



wherein  $m'$ ,  $n'$  and  $p'$  are each independently integers between about 8 and 20; and  $R_V$  is hydrogen, substituted or unsubstituted linear or branched chain lower alkyl or substituted or unsubstituted phenyl.

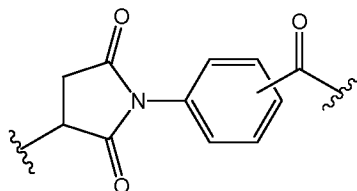
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30. **(Original)** The construct of claim 28 wherein m', n' and p' are each 14 and the lipid is tripalmitoyl-S-glycerylcysteinylserine.

32. **(Currently Amended)** The construct of claim 1, 14, 15 or 20, wherein the linker is a moiety having the structure  $-\text{NH}(\text{CH}_2)_t\text{NHC}(=\text{O})(\text{CH}_2)_v\text{S}-$   $=\text{NH}(\text{CH}_2)_t\text{NHC}(=\text{O})(\text{CH}_2)_v\text{S}-$ ; wherein  $t$  and  $v$  are each independently integers from 1-6.

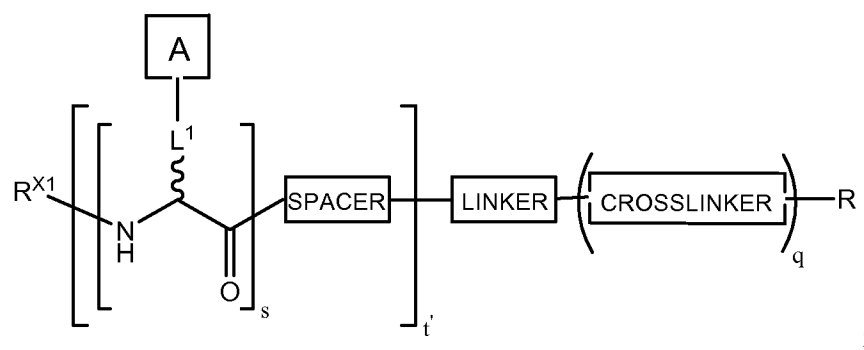
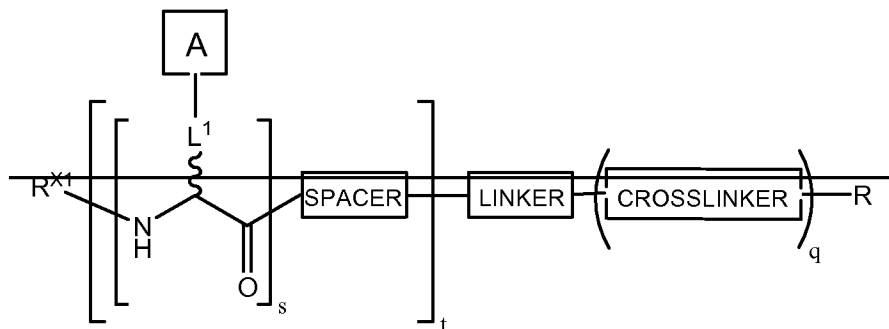
34. **(Currently Amended)** The construct of claim 1, 14 or 15, wherein n is 0, q is 1, R is KLH, the linker is a moiety having the structure  $\text{NH}(\text{CH}_2)_n\text{NHC}(=\text{O})(\text{CH}_2)_q\text{S}-$

$\text{NH}(\text{CH}_2)_{\underline{t}''}\text{NHC}(=\text{O})(\text{CH}_2)_v\text{S}-$  wherein  $\underline{t}''$  and  $v$  are each independently integers from 1-6, and the crosslinker is a moiety having the structure:



35. **(Currently Amended)** The construct of claim 32 wherein  $\underline{t}''$  is 3 and  $v$  is 1.

36. **(Currently Amended)** A method for the synthesis of clustered multi-antigenic constructs having the structure:



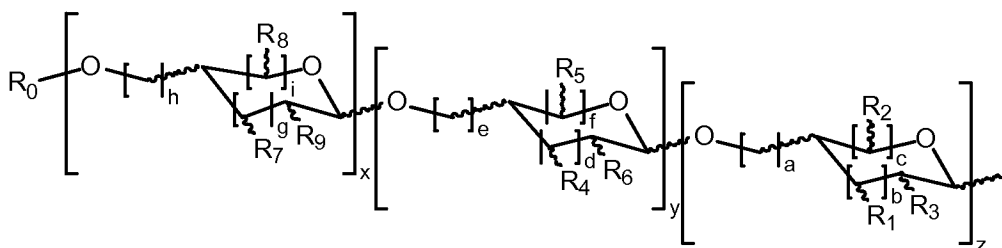
wherein  $q$  is 0 or 1;  
each occurrence of  $s$  is independently an integer from 2-20;  
 $\underline{t}'$  is an integer from ~~1-6~~ 2-6;  
 $\text{R}^{\text{X1}}$  is hydrogen, alkyl, acyl, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), a nitrogen protecting group, an amino acid or a protected amino acid;  
 $\text{R}$  is hydrogen or an immunogenic carrier;

each occurrence of the spacer is independently a substituted or unsubstituted aliphatic, heteroaliphatic, aryl, heteroaryl or peptidic moiety;

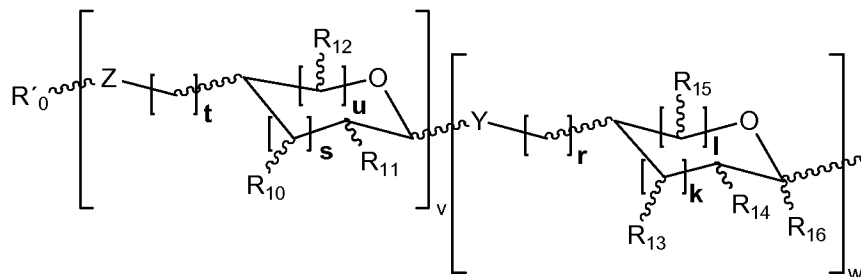
the linker is either a free carboxylic acid,  $-O-$ , (carboxamido)alkyl carboxamide, MBS, primary carboxamide, mono- or dialkyl carboxamide, mono- or diarylcarboxamide, linear or branched chain (carboxy)alkyl carboxamide, linear or branched chain (alkoxycarbonyl)alkyl-carboxamide, linear or branched chain (carboxy)arylalkylcarboxamide, linear or branched chain (alkoxycarbonyl)alkylcarboxamide, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester;

each occurrence of  $L^1$  is independently a substituted or unsubstituted aliphatic or heteroaliphatic moiety;

each occurrence of A is independently a carbohydrate domain having the structure:



wherein a, b, c, d, e, f, g, h, i, x, y and z are independently 0, 1, 2 or 3, with the proviso that the x, y and z bracketed structures represent ~~furanose or~~ pyranose moieties and the sum of b and c is ~~1 or~~ 2, the sum of d and f is ~~1 or~~ 2, and the sum of g and i is ~~1 or~~ 2, and with the proviso that x, y and z are not simultaneously 0; wherein  $R_0$  is hydrogen, a linear or branched chain alkyl, acyl, arylalkyl or aryl group; wherein each occurrence of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ ,  $R_6$ ,  $R_7$ ,  $R_8$  and  $R_9$  is independently hydrogen, OH,  $OR^i$ ,  $NHR^i$ ,  $NHCOR^i$ , F,  $CH_2OH$ ,  $CH_2OR^i$ , a substituted or unsubstituted linear or branched chain alkyl, (mono-, di- or tri)hydroxyalkyl, (mono-, di- or tri)acyloxyalkyl, arylalkyl or aryl group; wherein each occurrence of  $R^i$  is independently hydrogen, CHO,  $COOR^{ii}$ , or a substituted or unsubstituted linear or branched chain alkyl, acyl, arylalkyl or aryl group or a saccharide moiety having the structure:



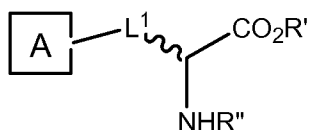
wherein Y and Z are independently NH or O; wherein k, l, r, s, t, u, v and w are each independently 0, 1 or 2; with the proviso that the v and w bracketed structures represent ~~furanose or~~ pyranose moieties and the sum of l and k is 1 or 2, and the sum of s and u is 1 or 2, and with the proviso that v and w are not simultaneously 0; wherein R'<sub>0</sub> is hydrogen, a linear or branched chain alkyl, acyl, arylalkyl or aryl group; wherein each occurrence of R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub> and R<sub>15</sub> is independently hydrogen, OH, OR<sup>iii</sup>, NHR<sup>iii</sup>, NHCOR<sup>iii</sup>, F, CH<sub>2</sub>OH, CH<sub>2</sub>OR<sup>iii</sup>, or a substituted or unsubstituted linear or branched chain alkyl, (mono-, di- or tri)hydroxyalkyl, (mono-, di- or tri)acyloxyalkyl, arylalkyl or aryl group; wherein each occurrence of R<sub>16</sub> is hydrogen, COOH, COOR<sup>ii</sup>, CONHR<sup>ii</sup>, a substituted or unsubstituted linear or branched chain alkyl or aryl group; wherein each occurrence of R<sup>iii</sup> is hydrogen, CHO, COOR<sup>iv</sup>, or a substituted or unsubstituted linear or branched chain alkyl, acyl, arylalkyl or aryl group; and wherein each occurrence of R<sup>ii</sup> and R<sup>iv</sup> are each independently H, or a substituted or unsubstituted linear or branched chain alkyl, arylalkyl or aryl group; and wherein each glycosidic moiety is either α- or β-linked to an amino acid;

with the limitation that each occurrence of A independently comprises a carbohydrate domain, or truncated or elongated version thereof, that is present on tumor cells;

wherein within each bracketed structure s, independently, each occurrence of A is the same

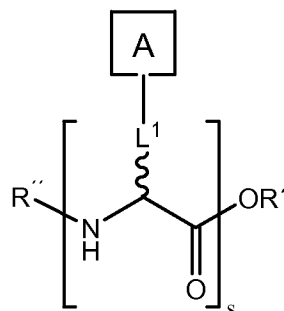
wherein said method comprises steps of:

(a) providing a glycoamino acid having the structure:



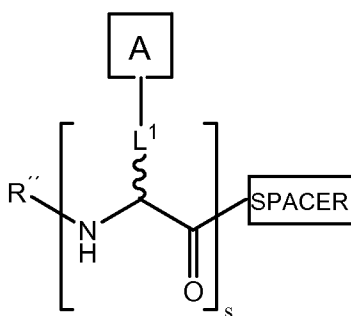
wherein A is a carbohydrate domain as described above;

(b) reacting  $s$  occurrences of said glycoamino acid under suitable conditions to generate a glycopeptide having the structure:

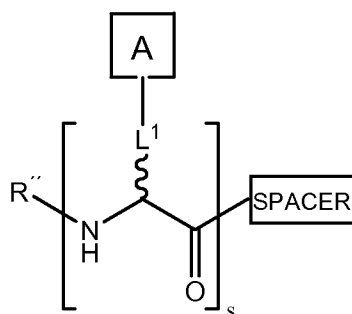


wherein  $s$  is an integer from 2-20; each occurrence of  $A$  is the same within the bracketed glycopeptide  $s$ ;  $R'$  is hydrogen or a protecting group; and  $R''$  is hydrogen, a protecting group, an amino acid or a protected amino acid;

(c) reacting said glycopeptide with a spacer under suitable conditions to generate a spacer construct having the structure:

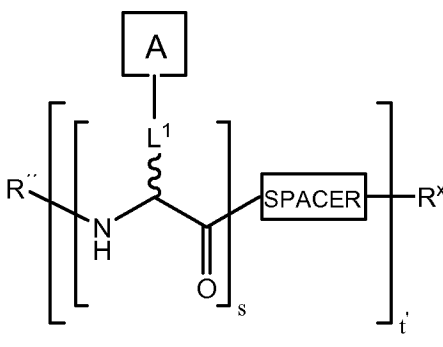
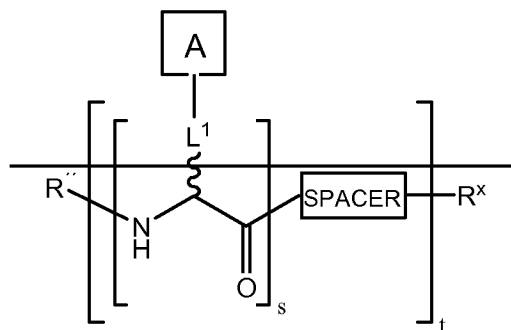


(d) Repeating steps (a) through (c)  $t-1$  times to generate  $t-1$  spacer constructs each independently having the structure:



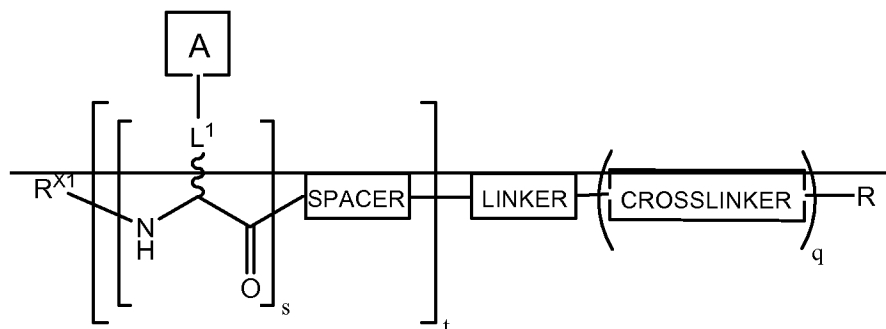
wherein, for each spacer construct,  $s$ ,  $L^1$ ,  $R''$  and the spacer moiety may be the same or different; and each spacer construct comprises a different carbohydrate domain  $A$ ;

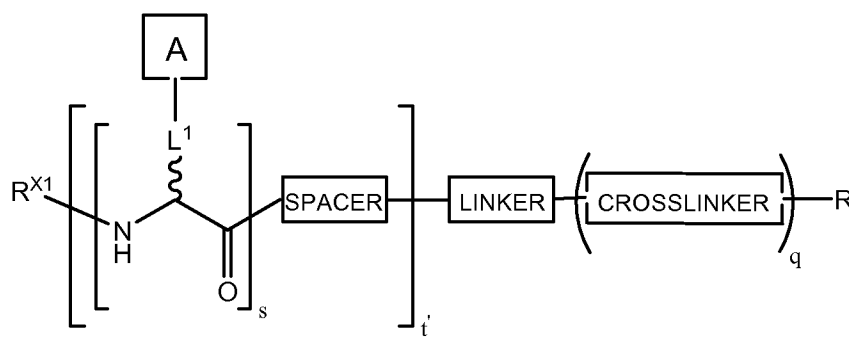
(e) Reacting the spacer construct formed in step (c) with the spacer constructs of step (d) under suitable conditions to generate a construct having the structure:



wherein  $R^x$  is a protecting group; each occurrence of A is the same within each bracketed structure s; and each bracketed structure s comprises a different carbohydrate domain A; and

(f) Reacting the constructs of step (e) with a linker and optionally a crosslinker and/or an immunogenic carrier under suitable conditions to form the clustered multi-antigenic construct having the structure:

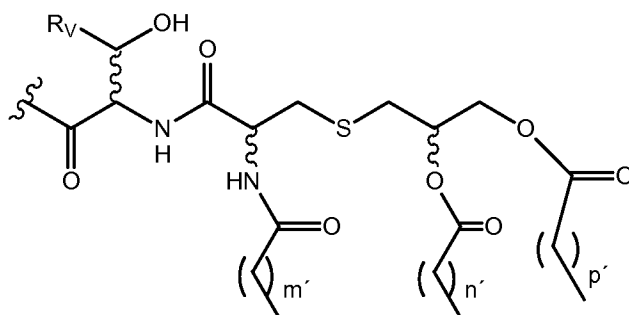




wherein q, linker, crosslinker and R are as defined above.

37. **(Original)** A pharmaceutical composition comprising:  
a construct of claim 1, and  
a pharmaceutically suitable carrier.
38. **(Original)** The pharmaceutical composition of claim 37, wherein the construct is conjugated to an immunogenic carrier.
39. **(Original)** A pharmaceutical composition comprising:  
a pharmaceutically acceptable carrier;  
an immunogenic carrier; and  
a multi-antigenic clustered construct of claim 1;  
whereby the construct has not been conjugated to the immunogenic carrier.
40. **(Original)** The pharmaceutical composition of claim 37 or 39, wherein the immunogenic carrier is bovine serum albumin, polylysine or keyhole limpet hemocyanin.
41. **(Original)** The pharmaceutical composition of claim 37 or 39, wherein the construct does not comprise a crosslinker and the immunogenic carrier is a lipid having the structure:





wherein  $m'$ ,  $n'$  and  $p'$  are each independently integers between about 8 and 20; and  $R_V$  is hydrogen, substituted or unsubstituted linear or branched chain lower alkyl or substituted or unsubstituted phenyl.

42. **(Original)** The pharmaceutical composition of claim 41, wherein  $m'$ ,  $n'$  and  $p'$  are each 14 and the lipid is tripalmitoyl-S-glycerylcysteinylserine.

43. **(Original)** The pharmaceutical composition of claim 37 or 39, further comprising one or more immunological adjuvants.

44. **(Original)** The pharmaceutical composition of claim 43, wherein at least one of said one or more immunological adjuvants is a saponin adjuvant.

45. **(Original)** The pharmaceutical composition of claim 44, wherein the saponin adjuvant is GPI-0100.

46. **(Original)** The pharmaceutical composition of claim 43, wherein at least one of said one or more immunological adjuvants is bacteria or liposomes.

47. **(Original)** The pharmaceutical composition of claim 46, wherein the immunological adjuvant is Salmonella minnesota cells, bacille Calmette-Guerin or QS21.

48. **(Withdrawn)** A method of treating cancer in a subject suffering therefrom comprising:

administering to a subject a therapeutically effective amount of a clustered multi-antigenic construct of claim 1,  
and a pharmaceutically suitable carrier.

49. **(Withdrawn)** The method of claim 48, wherein the construct is conjugated to an immunogenic carrier.

50. **(Withdrawn)** The method of claim 48, wherein the construct has not been conjugated to a carrier, and the method further comprises administering an immunogenic carrier.

51. **(Withdrawn)** The method of claim 48, wherein said method comprises preventing the recurrence of cancer in a subject.

52. **(Withdrawn)** The method of claim 48 or 51, wherein the cancer is a solid tumor.

53. **(Withdrawn)** The method of claim 48 or 51, wherein the subject is in clinical remission, or where the subject has been treated by surgery, has limited unresected disease.

54. **(Withdrawn)** A method of inducing antibodies in a subject, wherein the antibodies are capable of specifically binding with tumor cells, which comprises administering to the subject an amount of a clustered multi-antigenic construct of claim 1 effective to induce the antibodies.

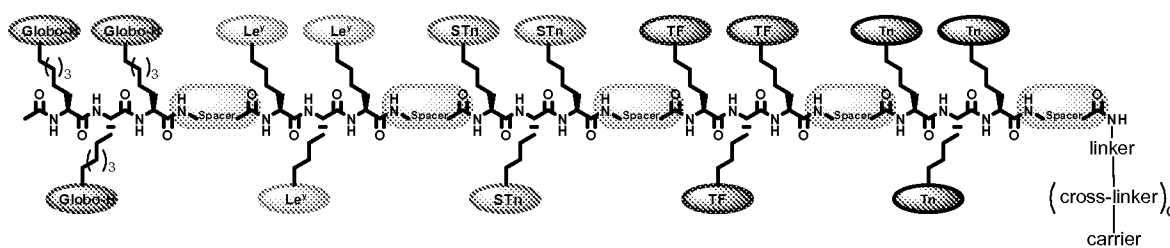
55. **(Withdrawn)** The method of claim 54, wherein the glycopeptide is conjugated to an immunogenic carrier.

56. **(Withdrawn)** A method of inducing antibodies in a subject, wherein the antibodies are capable

of specifically binding with tumor cells, which comprises administering to the subject:  
an amount of a clustered multi-antigenic construct of claim 1; wherein R is hydrogen; and wherein the amount of construct is effective to induce the antibodies.

57. **(Withdrawn)** The method of claim 56, wherein the method further comprises administering an immunogenic carrier.

58. **(Withdrawn)** The method of claim 48, 54 or 56, wherein the clustered multi-antigenic construct has the structure:



wherein q is 0 or 1; the spacer, for each occurrence, is independently a substituted or unsubstituted C<sub>1-6</sub>alkylidene or C<sub>2-6</sub>alkenylidene chain wherein up to two non-adjacent methylene units are independently optionally replaced by CO, CO<sub>2</sub>, COCO, CONR<sup>Z1</sup>, OCONR<sup>Z1</sup>, NR<sup>Z1</sup>NR<sup>Z2</sup>, NR<sup>Z1</sup>NR<sup>Z2</sup>CO, NR<sup>Z1</sup>CO, NR<sup>Z1</sup>CO<sub>2</sub>, NR<sup>Z1</sup>CONR<sup>Z2</sup>, SO, SO<sub>2</sub>, NR<sup>Z1</sup>SO<sub>2</sub>, SO<sub>2</sub>NR<sup>Z1</sup>, NR<sup>Z1</sup>SO<sub>2</sub>NR<sup>Z2</sup>, O, S, or NR<sup>Z1</sup>; wherein each occurrence of R<sup>Z1</sup> and R<sup>Z2</sup> is independently hydrogen, alkyl, heteroalkyl, aryl, heteroaryl or acyl; a peptidyl moiety or a bivalent aryl or heteroaryl moiety; the linker is either a free carboxylic acid, –O–, (carboxamido)alkyl carboxamide, MBS, primary carboxamide, mono- or dialkyl carboxamide, mono- or diarylcarboxamide, linear or branched chain (carboxy)alkyl carboxamide, linear or branched chain (alkoxycarbonyl)alkyl-carboxamide, linear or branched chain (carboxy)arylalkylcarboxamide, linear or branched chain (alkoxycarbonyl)alkylcarboxamide, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester; and the carrier is an immunogenic carrier.